NETWORK
64

Copyright 1987, 1988
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CHAPTER I
GETTING STARTED

Before you dive into this conversion, you should read through this entire documentation FIRST. The installation process was designed to be as simple as possible, however, problems can and do arise. Most often from not reading the docs first.

This Network was designed around a 100% stock Color 64 BBS version 7.30 BBS. The current BBS version as of this writing is 7.34. This software is fully compatible with version 7.34 and below. Any future BBS versions will either be compatible, or a *patch* file will be released which will enable it to be compatible. If you are running any modifications, please be aware that conflicts are sometimes inevitable. Although we've been pretty lucky in the past, there's always the chance that a new mod or game will conflict. Network 64 uses a minimal amount of variables thus keeping any possible conflicts rare.

In this documentation, the familiar checkmark preceding many BBS filenames has been replaced with the (^) carat symbol. Whenever you see this symbol, it stands for the checkmark symbol (PETASCII-186).

IMPORTANT NOTICE TO NEW COLOR 64 BBS OWNERS! If you just recently started running Color 64 BBS (or haven't even started yet), DO NOT install this network! You should wait until you've become thouroughly familiar with Color 64 BBS before you add on to it. If you are new to Color 64 BBS, and install this Network, you'll be well over you head in hot water regardless of how well you *think* you can handle it. Almost guaranteed!

Now, before we actually get started, take my advice, and remove all that clutter around your desk. Put those moldy coffee mugs in the sink, get those printouts out of the way. Clean your monitor,

get a pen and paper out. NOW you'll feel better, and the installation process will go MUCH smoother, trust me.

Look at your clock. Is it late at night? Do you have the time to do this? Give yourself plenty of time to deal with any possible problems which can arise. Nothing is worse than starting a project late at night, and running into a problem which keeps you up all night frantically trying to get your BBS back on-line.

The first thing you MUST do, is to backup some existing files. Following are the files we will be altering:

^bbs.init, ^bbs.msgs, ^bbs.xfer, ^bbs.ovl, ^bbs.ov2, ^bbs.ov3 ^bbs.setup, ^bbs.edit, ^bbs.parms

Back-up all THESE files plus your password file. **THIS IS VERY IMPORTANT!** I know you've heard this over and over again, but trust me, you won't regret it.

We will be adding two new main program modules to your Rampak or Lt Kernal. These files are called: ^bbs.nw1 1.24 & ^bbs.nw2 1.24.

CHAPTER II
HARDWARE REQUIREMENTS

It is REQUIRED that you have a fast means of loading overlays within the BBS environment. There are only two I know of which can accomplish this speed. The Commodore rampak series, and the Xetec Lt. Kernal hard drive system. This requirement is not only for your own benefit, but also those of your nodes. There is also the real possibility that if you are NOT using one of these methods, the network will not work properly since there are precise timing routines within the system that expect certain things to happen at certain times.

As for rampaks, although there are currently three different models out there (1700, 1764 & 1750), you'll find it next to impossible to fit the required files into the 1700. Earlier fliers for this software stated that all three would be ok. This is no longer the case since improvements and features have expanded the original size of the software. You should have at the very least, 256K. Preferably 512K. All three rampaks are basically identical except for the DRAM chips which are soldered into them. If you have a 1700,

don't throw it out or sell it! If you or a friend has the skill, you could replace the chips with those capable of storing more data. If you'd like more info on this technique, drop me a letter and I'll send you a copy of the instructions for doing this. If you DO have a 1700 (with 128K), and were under the impression that this network would work with that rampak, let me know, and I'll gladly refund your purchase price.

Aside from the above requirements, Network 64 is fully compatible with all hardware which is supported by Color 64 BBS.

CHAPTER III
BRIEF SUMMARY OF REQUIRED FILES

Following is a brief summary of all the network related files which can be found on your Network 64 diskette. Refer to the documentation for specific details of what each does...

^bbs.nw1 1.24 This is one of the two main network program modules.
^bbs.nw2 1.17 This is the second main network program module.
network.merge This is the file which will actually install all the support code for the Network into your BBS modules.
avatex.merge This file will alter the Network to allow use of the Avatex 1200HC modem.
ltk.patch<7.1 This merge file is for Xetec Lt. Kernal owners with DOS version BELOW 7.1.
ltk.patch>7.0 This merge file is for Xetec Lt. Kernal owners with DOS version 7.1.
net setup 1.24 This stand-alone file is similar to the BBS setup program. It allows you to define drives, and specify individual node data.
prscrn 52000 This file must be on the same drive as "net setup". It allows you to do screen dumps to your printer while inside the net setup program. ***
bck to bill 1.17 This is a stand-along program which will create a new billing file from a backup.

parms fixer 1.18 This stand-alone program will update your ^bbs.parms file to Network 64.

ind.ov.nw This is a merge file which must be manually merged into any overlay you have which is HIGHER than ^bbs.ov3 (such as ^bbs.ov4, etc.).

start 1700/nw & load 1700/nw These files directly replace your "start 1700" and "load 1700" booters respectively.

restart 1700/nw & auto 1700/nw These files directly replace your "restart 1700" and "auto 1700" booters respectively.

init This program is for use with those using RAMDOS. It is absolutely required to load your main network modules into ram using this method.

!bill/bck/mrg This is an optional merge file which will install an automatic billing backup feature into your midnight routine.

!appl/norm/mrg This is the STOCK BBS application file. It can be merged into the Network if you would rather use the stock application routine.

^node app This sequential file is a file YOU edit. Its used when calling a new node for the first time to introduce yourself to the new node. *

^application This is NOT the stock ^application file found on the BBS. This file is adapted for use with the custom application routine built in to the Network. **

^conditions This is a sequential file YOU create. It is used when a node calls you for the first time.This file describes your validation requirements to the new node. *

^temp xref This files purpose is it to be able to assign nodes new ID numbers without them having to change their ID's. It is created and edited manually. *

*Must ALWAYS remain on your Network drive.
**Must ALWAYS remain on your BBS Systems drive.
***Must ALWAYS remain on the same drive as your Net Setup 1.24 program.

The following files are more or less self generated and will appear on your drive as they are needed.

^node x users This is created EVERY midnight. It is a membership list of YOUR BBS.

^node ? users The question mark stands for the node number. This is the corresponding membership list for any one particular node you may have. This file is received at the time YOU send data and are ready for a new listing.

^+node ? This is the actual message which you or a user has posted to node number ?.

^node ledger This is sort of a mini-log. Once its created, it will always remain on your drive until you either move or scratch it. This shows account node transactions.

^public storage When a node sends YOU public messages, and you requested to release them manually, this is the file in which they are stored.

^node list This listing is created by the Net Setup program. It is the listing you or your users would see when sending to a node.

^ntwrk.parms This is also created by the Net Setup prg. This file contains lots of data of how you requested your network to run. It also contains data for each node.

^node accounts This is a relative file which will contain name, password, level, and last date called for each incoming node you have.

^node billing Also a relative file. It contains the dollar amount for each user on your system.

CHAPTER IV
THE INSTALLATION

Now that you have made your backups, you're ready to begin the actual installation. Locate the file from your Network diskette called "parms fixer 1.18". Load and run this file on your current ^bbs.parms file.

----------------------> LOAD"PARMS FIXER 1.18",8

Now locate the file from your Network diskette called "network.merge". This file will alter ALL the modules listed in the GETTING STARTED section. Make sure these files are all on drive 8,0. Load and run the network.merge file now.Your files will all be updated. Depending on the speed of your drive, this can take between 1 and 15 minutes. When the merge is complete, backup this disk.

----------------------> LOAD"NETWORK.MERGE",8

Now its time to run the normal BBS Setup program.

----------------------> LOAD"SETUP",8,1

Everything will look the same until you get to the PAGE 3 BBS COMMANDS screen. You'll see 4 new options listed. You will need to come up with 3 new command keys (or use the default ones you see on the screen). Here is the description of what the

four options are used for:

POST NETWORK MSG: This is where you or your users actually create the network messages. I allow all but new users into this section.

MAINTENANCE MENU: This is a sub-menu within the Network that will allow you to do certain maintenance either on-line or off. This section has options for editing/viewing the billing file, the node account file, and the node status file. Much more on these options later. I allow only myself in this section, although a trusty co-sysop would probably be ok here.

RELEASE PUBLICS: This is an ideal area for a co-sysop. This is the feature that allows you to release public messages which have been stored from the network. This subject will be covered in detail later on in the documentation.

RESTRICT POSTS: This is NOT a command. This feature allows you to define a limit to the number of Network posts a user can make. If you choose not to charge for any or all nodes, you might not want people sending out too much in one call. The first number is the level exemption. If a users level is equal or greater than this number, they would be allowed to post network messages to their hearts content. The second number is the maximum number of posts a user can make per call unless that user has a level which exempts him/her).

You're done with the BBS setup. Finish up with it as you would normally.

CHAPTER V
NETWORK SETUP

Now comes the REAL thing. We're going to really start setting up the network! Locate the file called "net setup 1.18". Make sure the file called "prscrn52000" is located on 8,0. Load and run.

————————> *LOAD"NET SETUP 1.18",8*

The first thing that will happen, is you will be asked to insert your ^bbs.parms disk into drive 8,0. Make SURE it's the same parms file we fixed earlier in this section!

IMPORTANT! REMEMBER THIS! NEVER UNDER ANY CIRCUMSTANCES USE YOUR DELETE OR INSERT KEYS WHILE IN NETWORK SETUP OR THE BBS SETUP PROGRAM. IT WILL RUIN YOUR DATA ALMOST EVERY TIME! IF YOU NEED TO EDIT SOMETHING, ALWAYS USE YOUR CURSOR LEFT OR CURSOR RIGHT KEYS AND TYPE OVER WHAT YOU ARE EDITING.

After a few seconds you're asked for the number of nodes you would like to have. This is important! Count the number of nodes you have in mind, and enter this number. You are being asked this question because you will then be asked to fill in data for each one of these nodes, so if you have no info on any nodes, don't run this program until you do. If you need some nodes, take a look at the enclosed node listing, and choose from this list if you like. You may have from 1 to 99 nodes. The higher number you use, the more memory you'll consume.

Next question serves two purposes. If you aren't familiar with how the network works, you can send private E-Mail OR public messages. If someone sends YOU a public message, this question will determine how that public message is handled. You have two choices. You can have the message stored in a special holding file, and then release it manually, or you can have the message automatically go into the message base. If you want the message to go directly into the message base, enter the category LETTER you wish the message to go into. You can type a question mark to get a list of your categories at this point. If you would prefer to hold the messages, and release them manually, enter a 0 (zero) now.

The next two questions require a little explaining. When a user sends a network message on your BBS, the file is stored on your disk. The file doesn't get sent out until you want it to. The next two questions tell the network what time of day you would like messages to be sent. You will be asked to enter the time in MILITARY time (i.e. 0=midnight, 9=9am, 22=10pm). This time limit is called a *window*. If there are messages due out, they will ONLY go out inside this window time (there is an exception to this....read on). There are two restrictions you need to keep in mind. First, you cannot OPEN the window at a time later than you CLOSE the window (this should be obvious). Second, you can NOT have the window open THROUGH midnight. In otherwords, you can OPEN it at midnight, but you couldn't open it at say 11pm, and CLOSE it at say 3am. When you open and close

depends largely on what time zone you are in, and when your phone rates are the lowest (most are 11pm-8am). I recommend midnight to 6AM, but its entirely up to you. There is one more thing I'd like to mention before we go on. The network dials out ONLY after 5 minutes of inactivity. If a caller doesn't call within 5 minutes, and we are in the open window zone, and there is network mail due out, the network will attempt to dial out. If a connection is NOT made, the cycle will continue after another 5 minutes of inactivity. So this is important. If your BBS is generally dead after midnight, I STRONGLY suggest you set the OPEN time at midnight. After the midnight reset, the 5 minute routine will be started, and this will trigger the network all night long. If you set your OPEN time at say 1AM, and you didn't get a regular caller till say 6AM, your network would have just sat there all that time! I hope I've explained this all well enough. You can always change the window times, so a little experimentation will determine what's right for you.

Enter your OPEN and CLOSE times now.

Next question deals with the special membership list. At midnight every night, your BBS will create a special network membership list (called node x users on your disk). When you send out net messages to your nodes, they may request a fresh listing from you. This is the file they will get. This value determines how long you would like to wait before requesting a new membership list when YOU call a node. Mine is set for 20 days. The smaller the number, the more requests your network will make, and the longer you will be on-line.

Next question asks you for YOUR BBS name. This name will appear on ALL headers of all messages sent out. The maximum length is 25 characters.

The next question is a tad complicated to explain. If your modem uses AT type commands, and can return the BUSY or NO DIALTONE response set (almost all 2400 modems and some 1200's do), you COULD answer yes to this question. Check your modem manual under the command ATX. It should tell you there. The reason I said you COULD answer yes, is because you don't have to even if your modem does support these status responses. Let me try and explain the purpose. When you dial out to a node, and say the node rings and rings, but doesn't ever answer. You MAY prefer that from now on, that node be locked out if that

happens again. There is a built-in feature in the Network which will LOCK a node when certain conditions arise. One of the conditions is called a CARRIER LOCK. This means that you attempted to dial out to a node, but your modem returned a NO CARRIER. With a modem that supports the BUSY and NO DIALTONE response, you should not be getting a NO CARRIER response. Unless of course the node's modem isn't picking up, the node has crashed, or the node is down. I myself answer NO to this question even though my modem DOES support these response codes. The reason being, if you call out to a node that is resetting either after a caller, or at midnight, you would get the NO CARRIER, and the node would be locked out. I didn't want that, but its entirely up to you how you select this. Remember, if your modem does NOT support these response codes, then in a way you're lucky as you have no difficult choices to make here. You must answer NO.

Drive Assignments setup. ALL network activity looks on this drive. Make sure its a drive which usually always has sufficient space. For hard drive users, I suggest devoting an entire partition for this assignment. Avoid using a drive where space varies a lot (such as an upload drive).

After you have completed this screen, the real fun begins! If everything has gone smoothly so far, you should be at the individual node editor prompt. At this prompt, you're given the option to edit any of the individual nodes. Also, the number you see within the double brackets [], tells you the last NODE NUMBER you edited. If you hit a question mark (?), you will get a listing of each NODE NAME, and its status. This is especially handy for finding a blank spot, or when trying to locate a certain node to edit.

Before we start editing individual nodes, lets clarify one thing. When YOU assign a node a certain number, this will be called YOUR NODE NUMBER. When you set a nodes ID number, this is the NODES ID NUMBER. This has been a little confusing in the past, so I thought I'd clarify it before we went on. Also remember that INCOMING and OUTGOING are two seperate things. When you use Net Setup, you're setting up for OUTGOING calls. When you use the Node Editor, you're setting up for INCOMING calls.

Now its time to edit our first node. Enter the number 1 (NODE NUMBER ONE), and hit RETURN. The first prompt asks you for

the name of the node. You are limited to 25 characters. The name you enter here will appear to all users when they go to post a network message. If you wanted to replace this node with another, simply enter the new node's name.

Now you need to enter the membership ID number for the node which you are working on. There are two ways to get this ID number. One way is by requesting that the Sysop of this node set you up on his or her system. He or she will then give you an ID number and password. An easier way, is to let the network do an equivalent of a NEW USER process. If you know your ID number, enter it now, otherwise enter a 1 at this point. The number 1 means that you will be calling this node for the very first time. After you call the node, it will automatically send the ID number, and it will be entered into this slot automatically.

Next is the city and state of the node. Note that you MUST have a slash SOMEWHERE in this line. Don't use a comma. (i.e. Berkeley/Ca). This question is 100% cosmetic.

Now for the phone number. Enter any special access codes or whatever you'll need. Also, if you're using a modem that uses AT commands, make sure and precede the number with a "t" or "p" for tone or pulse dialing (i.e. t14154861160).

Password time. If you were assigned a password, enter it now. If you answered the ID prompt with a 1, then make up the password you would like. Remember, 3-9 characters only. Don't use any exotic characters either as they will be stripped out. You can enter in lower or uppercase. Any lowercase characters will automatically be changed to uppercase for you.

Now for the baud rate. You are allowed 300, 1200 or 2400 only. If you are running a 2400 baud modem, and are not sure what rate this node is using, you may enter 2400 anyway. Your modem will recognize the baud rate of the node, and the network will automatically step it down to the proper baud rate.

The following two questions determine how much (if any) you plan on charging to allow messages to be sent. You can set up a different rate for each node. They can all be totally free if you choose. If you are not going to charge for this node, enter 0.00 at the next two prompts.

The first charge prompt determines how much you will charge for the first 1000 bytes or less. Say you wanted to charge 25 cents for the first 1000 bytes (most will be well under 1000 bytes). Make sure that you enter it as 0.25 and not 25. or 25.00.

Second charge prompt is for each additional 100 bytes after the initial 1000 bytes. You can leave either of these two prompts zero if you like. Say you wanted to allow the first 1000 bytes free, then only charge for any message after 1000 bytes. You could do that by leaving the 1000 byte question 0.00. With a little trial and error, you can set this up to break even when your phone bill comes in.

Speaking of phone charges, in case you're not familiar with *AT&T's Reach Out America* plan, you might want to inquire about it. You sign up once, and thereafter, at certain times of the day, you are allowed to call anywhere in the USA for something like $7.50 an hour. This is something like 60 average node calls for that amount (most node calls are under 60 seconds!). For more info, call AT&T at 800-222-0300.

Last two prompts. You can store up individual messages instead of sending each day. There are two ways you can do this. You can determine this on a *PER MESSAGE* or *PER DAY* basis. In otherwords, lets say you want to have messages for this node before the network tries to send. You would then enter a 5 at the per message prompt. But lets say that only two messages were sent to this node, and some time has passed. It's not a good idea to have someones messages sitting on your disk while days go by without them being sent out. Kind of defeats the entire purpose of the network. This is where the per day field comes in. At midnight each night, the network will look over all the network messages, and determine if they have been there longer than the number of days you requested. If so, the message(s) will get sent. I myself answer both these questions with a 1 on all my nodes since I want to keep things coming and going. Note that you can't enter a number lower than 1. Also, if you enter 1 at both prompts, it is possible for say your network to send at 1AM, then have a caller post a network message, and then the network would send again in the same night. This is a rare example, but it does happen once in awhile. If you don't want this, enter a number higher than 1 in either of the two prompts.

Now answer "y" if the screen is properly filled out. At this point, one of two things COULD happen. If you set this node up with an

ID number of 1, you will have a little bit of disk activity. What is happening, exactly, is that the program is copying your ^node app file into the ^+node x file (x being the node number).

The other thing that might happen, is if you entered a BBS name other than the one which was there before (replacing one with another). You will be asked if you are indeed replacing one node with another. If you answer yes to this, the old node's files will be scratched.

You have setup your first node! It's tricky, yes, but you'll get the hang of it. When you've set up all your nodes, simply hit RETURN at the "select node number" prompt, and all the required files will be created. Just for reference, these files are: ^ntwrk.parms, ^node list, ^node accounts, ^node billing. Note that the last two files are only created if they do not exist already.

You can always alter any of the info in this file, but obviously, you want to use a little judgement. If you make changes in the drive setup, don't forget to move the files which may exist on the old drive! Things like that. Unfortunately, you will always have to take the BBS down to make any changes, so do what I do, and write down all the changes you need to make over the course of a few days so that you can tackle a bunch of stuff at once instead of shutting down, and booting up over and over again.

One VERY important word of caution! **NEVER EVER** edit either the ^ntwrk.parms or ^node.list file. EVER! If you do, your computer, your drives, and your modem will explode! Don't do it. Your BBS will probably crash left and right, you'll be sending net mail to the pizza parlor down the block, and generally creating havoc for yourself and quite possibly your nodes.

CHAPTER VI
BOOTING UP AND GETTING FAMILIAR WITH THE FEATURES

Now that you have finished with the setup (it wasn't that bad was it?), it's time to boot up the BBS. Before the network came along, there were basically three different ways of booting up. They depended on what type of hardware you were running. The normal basic booters would be BBS, START 1764, & START 1700. These will remain the same accept for those of you who boot with the START 1700 booter. If you do NOT use this booter, skip to the

next paragraph. If you use the start 1700 booter, you could remove the following files from your boot disk: START 1700, LOAD 1700, RESTART 1700, & AUTO 1700. These are directly replaced with the four booters located on your Network disk....START 1700/NW, LOAD 1700/NW, RESTART 1700/NW, & AUTO 1700/NW. These work exactly like the former files with the only difference being that they will also load in the two main network modules (^bbs.nw1 1.24 & ^bbs.nw2 1.24).

Ok, regardless of which way you boot up, make certain that the two main modules (^bbs.nw1 1.24 & ^bbs.nw2 1.24) are on your boot disk or drive. If you use Ramdos (start 1764), make absolutely sure that these files are getting stashed into ram at the time Ram is getting loaded. This is accomplished using the file called INIT. If you already use init for your own purposes, make sure and either merge in the supplied init file, or just add the necessary code.

LEAVING OUT THESE TWO MAIN MODULES IN A RAMDOS SYSTEM IS BY FAR THE NUMBER ONE THING PEOPLE ARE FORGETTING TO DO! THESE MODULES MUST GET LOADED IN AT THE TIME ALL THE OTHER FILES ARE GETTING LOADED IN. YOU CAN'T GET THE BBS BOOTED ALL THE WAY WITHOUT THESE FILES BEING IN RAM!

RAM USERS PLEASE MAKE SURE YOU HAVE SUFFICIENT SPACE AVAILABLE! THIS IS THE SECOND MOST COMMON PROBLEM.

For Lt. Kernal owners, all you need to worry about, is that these main modules are on your BBS PROGRAMS DRIVE.

Boot up your BBS now. When you get to the familiar call waiting screen, it might not seem so familiar anymore. There are two new "status line" values which have been added. They are labeled N-PUB & N-OUT. N-PUB shows you how many (if any) public messages which have come in from the network, are waiting to be released. If you are not using this holding feature as described in the Network Setup section, then this number will always be 0. N-OUT shows you how many calls are due to be made. It does NOT show you how many messages are due out, it only shows you the number of nodes which are due to be called. If a node is locked for some reason (read on for info on locking nodes), it WILL show this node as due to go out UNTIL it tries to go out, in which case it

will adjust itself. More on this later...

Ok, now hit any one of your function keys (F1-F8). Take a look at this menu again. The CHANGE TIME/DATE function is gone! Don't worry, its still around. Instead, at F4, you'll see whats called NETWORK MENU. Hit F4 now. Now you are at the Network menu. Everything on this menu will be explained in detail.

The first thing you see is a free memory check. This displays how many bytes you have free in memory. It's impossible to say where this should be. But if it gets down towards 3000 or so, I'd say you're running a loaded BBS (lots of games, and mods), and run the risk of an out of memory error. If you don't have it installed now, I suggest you install the mod called "FREBOOT" which has been provided on your Network disk. This will check your memory from time to time, and restart the BBS if it falls at a dangerous level.

F1 - CHANGE DATE/TIME : There it is! This does the same exact thing it did when it was in the Sysop Menu.

F2 - CHANGE WINDOW This is an option to change your window times (read the NETWORK SETUP section). This option will remain in effect till either you change it again here, your BBS crashes, or you re-start it. It is a temporary change only. It's easy to use, and pretty much self explanatory.

F3 - MAINTENANCE This accesses yet ANOTHER menu. The difference between the maintenance menu, and the one you are looking at now, is that maintenance is accessible via this menu, AND accessible on-line as well. We'll go into this a bit later.

F4 - MULTI-SEND MESSAGES This is a feature which allows you (only yourself since it is NOT available on-line) to send the same message to more than one node at a time without having to visit the message maker each time. The first thing you need to do, is to create a NET default message. This is DIFFERENT than your normal BBS default message. It can only be created in the POST NETWORK MSG section (see F7). After you have created this default net msg, you can then use this feature. To use, simply enter the NODE NUMBERS you wish to send to separated by commas (just like in a multi-download). If you want to send messages to every node you have, simply enter the word "all".

After you make your selection, the individual copies will be made. When you're done, you have the option of saving this default message (indefinitely or until you create a new one). Note: The mail verification option is NOT available when sending out multi-messages.

F5 - RELEASE PUBLICS This is where you go to release any public messages which may be holding. Once again, you may not be needing this feature. This is another easy to use, self explanatory option. You can re-read a message, hold it, delete it, or release it into your message base (all pointers will be set properly). This option is also available from on-line.

F6 - REGENERATE NETWORK INDEX This can be used anytime you suspect something went screwy. If your N-OUT or N-PUB status values are incorrect, select this option, and the index will be regenerated quickly. This is also used in case you wanted to delete a node message directly in the BBS DOS (node messages begin with the prefix ^+node). The network index is automatically regenerated when you boot up the BBS, and every midnight, so things should pretty much stay in good shape.

F7 - POST NETWORK MSG This is where you go to actually enter the message to any particular node. An awful lot goes on here, so this will be a lengthy description. This option is of course available on-line as well.

When you first access this section, your account balance will be shown. If you are at level 9, this process is bypassed. Also at this time, free space is checked on your NETWORK drive. The "reserve" free space used is the value you defined in the BBS SETUP under the free space allowance for uploads.

Next you are at the prompt which asks you which node you want to select. If you are at a level 9, you will see an additional message reminding you how to send a default net message (read above). If you enter ?, you will get a listing of all participating nodes along with their rates (if any). When you enter the number of the node, you will be given the name of the BBS. Answer Y if it is correct.

Now you are asked whether the message is private or public. If you choose public, then you will be asked for the subject, and will be dumped into the message maker. If you answer private, then you have a few options. You can at this point look at this nodes

membership list by hitting ?. You will of course not have a list until you send your first message. You can enter the users name or number. Depending upon how far down the list the user is, this can be extremely slow as each line needs to be scanned sequentially. Entering a number is slightly faster than using a name. Entering SYSOP will bypass the search, and the message will go to user #2 (the sysop).

By now you should be in the message maker. Everything is EXACTLY as it is when you are in the BBS message maker. You can use the C= key to merge files just as before. When you go to save the message, it will not be saved right away. You will first be shown the length of the message (in bytes). If the message costs more than you have in your account, you will be told so, and will not be allowed to send it unless either you shorten it, or abort.

After you are able to send the message, your account will be adjusted (unless the node was free or you are at level 9), and you will be shown your new balance. At this time, you are asked if you would like E-Mail verification of when the message is sent. If you answer Y to this question, when the message is sent out to the node, a note will be put in your mailbox showing you the time and date the message went out.

At this time, a file called ^node ledger is appended to (or created). This "mini-log" contains all transactions. This file can be used to reconstruct a billing file if needed. It will get larger and larger as time goes on (unless all your nodes are free). If a node is free, nothing gets put in this file.

F8 - RETURN TO BBS This brings you back to the call waiting screen.

Whenever you choose any of these 8 options, you should see a quick flash on your screen. This is just to confirm that your keypress was acknowledged since some options may take a second or two to access.

Now for the MAINTENANCE section. The first few options are pretty easy to figure out. They all deal with the billing file. Option 1, Billing List/Print does just that. It allows you to list or print out any part of the billing file. Option 2, Billing Edit allows you to actually edit any account. Option 3, Report Generator requires a little explanation. This feature lets you look at the billing file in a

few flexible ways. If you want to see any records which have SOMETHING in them, you would enter either >0 or <>0. If you want to see records which have less than $1 in them, you could enter <1. Option 4, Total Accounts does just that. It will go through the entire billing file, and tally up the grand total amount.

Next option #5 you will use often. This function allows you to do a few things. You could manually LOCK any node. What this does, is to actually put a lock on any activity for any node. If there are any messages, they will NOT go out under any circumstances. If a node is locked, you would also not be allowed to post a message to that node. LOCKing a node is done manually. There are two other ways a file can become locked. They are called ACCESS and CARRIER. Access and carrier are done automatically. LOCK is done manually. ACCESS means that the node was called, and you were denied access for some reason. CARRIER is when you have selected the special response code setting in Net Setup (see the net setup section). This means that you called a node, and your modem returned a NO CARRIER (indicating that the node did not pick up, or no answer, or voice). To LOCK or UNLOCK a node, access this section. You will first be shown all the nodes with their stats. After the listing, if you hit RETURN, you'll go back to the menu. If you enter a node number, you'll be given a chance to Lock or Unlock one or more nodes. It's very simple.

Option #6. This is where you go to edit your INCOMING node accounts. Everything here is very straightforward. See the section on setting up incoming nodes for more information on exactly what you'll need to do at this editor.

CHAPTER VII
SETTING UP A NODE ACCOUNT

When a node calls in to you, it will send an ID number, and a password. Basically, this works just like the normal BBS. If the password doesn't match the assigned password, no access. Additionally, if the node calling in is new, your network will send an ID number to the node, and the node will send you its desired password. After the call is made, the node will store the ID which was issued to it by your network, and on your end, you will store the nodes password in your account file. All subsequent calls from this node will go through normal channels.

Like the BBS, there is an access level for nodes. When a new node

calls in for the first time, it is given an access level of 0. This means that any node with an access level of 0 will not even be allowed access period. So if this new node called you again, and you did not yet validate it, it would have wasted a call because it wouldn't be allowed in. The access number must be GREATER than 0 to gain access. There is a lot involved with node access levels. More on this very shortly.

Currently there is only one way to edit an account. This is in the BBS maintenance section (as mentioned above). I hope to create a stand-alone node editor shortly. All accounts are stored in a relative file called ^node accounts.

In the ^node accounts file, there is room for four separate fields. Field #1 is the NODE NAME. The name is limited to 25 characters. Don't worry about counting the length, as the editor will only take the first 25 characters. Incidentally, this name is for your own use only. Nobody else will ever see it but you (or a co-sysop who has access to the maintenance section). Field #2 is the password. This is limited to 9 characters. Field #3 is the level field. The only valid numbers allowed here, are 0-100. More on the levels in a second. Field #4 is the last date the node called in. This field is purely cosmetic. It's basically for you to see how often nodes are calling, so you could perhaps decide when it might be time to delete them. I guess you could call this a manual purge.

You could delete a node by typing "delete" at the NAME input.

The reason we're saving the level access for last, is because admitingly, its very confusing. It's NOT complicated, just confusing. There are THREE different modes of access levels. Mode one would be unvalidated. This is indicated by having a 0 (zero) in the level field. With a 0, an incoming node would be denied access. When a node calls in as NEW, their level will automatically be set to zero. Mode two would be a simple unreplyable, validated node. Here is the key. You may have a node set up to call you, but for some reason, you may not want to be calling them. Or, to put it another way, if you DON'T want any incoming messages from this node to be replyable, give this incoming node an access level of 1. Got that so far? Level 0 is totally unvalidated, level 1 is validated, but replies are not allowed to anything they send to you or your users.

Now, remember that discussion we had about NODE NUMBERS?

If not, go back and read it, because its important. Let's say you have 3 nodes, ok? When you go to post a message to a node, and you hit ? for a listing of the available nodes, lets say you get a list that looks like this:

1:	THE ABC BBS	$0.00	$0.00
	Brooklyn/NY		
2:	THE DEF BBS	$0.00	$0.00
	Chicago/IL		
3:	THE GHI BBS	$0.00	$0.00
	Los Angeles/CA		

Now according to this list, "THE DEF BBS" is node number 2. It doesn't matter where in your node accounts file this BBS is located, and we're not talking about NODE ID's. We're talking about the NODE NUMBER.

Ok, back to levels. Let's say you're in the node editor, and wanted to validate node number 3 (THE GHI BBS). You want to be able to reply to any messages this BBS sends to you. Here's the IMPORTANT part. At the access level, you want to enter 3 PLUS 1 (4) as the access level.

TO MAKE ANY NODE REPLYABLE, GIVE THEM AN ACCESS LEVEL OF 1 PLUS THE NODE NUMBER AS IT APPEARS ON YOUR NODE LISTING. IF YOU WANT NODE NUMBER 24 TO BE REPLYABLE, YOU WOULD ENTER 25 AS THE ACCESS LEVEL. IF YOU DID NOT WANT TO BE ABLE TO REPLY TO NODE 24, YOU WOULD ENTER A 1.

I realize this is a little awkward, but I didn't want to add an extra field just for this purpose. If you inadvertently entered an incorrect access level, the reply would probably go to the wrong node.

CHAPTER VIII
MISCELLANEOUS OPTIONS/FEATURES

For those of you starting anew, you should know that the normal BBS new user application routine has been moved from ^bbs.init. It is now located in ^bbs.nw2 1.24. Additionally, the application routine installed in ^bbs.nw2 1.24 is a modified version. This is called APPLICATION-PLUS and was written by myself. Take a look at the file called ^application which is on your network disk. This file can be edited by you to reflect what questions you would

want to ask. On the flip side of the Network disk is the complete mod with instructions on how the file needs to be modified. The reason I put this in, instead of the stock application routine, is because I found it to be so important to have all applications stored on disk (which this mod does automatically). If you DON'T want to use it, simply merge in the enclosed file called "!appl/norm/mrg". This is the stock BBS application all ready to be merged into ^bbs.nw2 1.24.

If you are not running all your nodes as free, you may want the added comfort of knowing that you will not lose track of anyones money, by installing an automatic midnight backup feature of the billing file. It's very simple. Just merge in the file called "!bill/bck/mrg" into ^bbs.nw2 1.24.

There is an option at the call waiting screen which allows you to manually force a call out to a node. This will only work if you have messages to be sent out. If a node is locked, or there are no messages due out, nothing will happen. All you need to do, is to hold down the CTRL key for about two seconds. This will allow you to send out messages OUTSIDE of the normal window time.

When a node calls in, and sends E-Mail, before that E-Mail is delivered, the name on the header of the E-Mail will first be checked against your password file to be sure that the user still exists. If not, or if for any reason the mail is undelivarable as written, it will end up in YOUR mailbox with a note attached to it showing you where it was SUPPOSED to go. You can then direct it properly.

Most network activity shows up in the caller log in BLUE. You must be on-line to see this though because when viewing the log from the call waiting area, you are set in ASCII mode, and you won't see any color.

When setting up a new node, you won't have its membership list till after you send the first message. Until you get the membership list, you will only be allowed to send either public messages or E-Mail to the Sysop only.

There is an IRQ timer wedge installed into the network which is active whenever the network is on-line. This wedge keeps track of the on-line time. If after 3-1/2 minutes it still sees a carrier, it will force the modem to disconnect. This will ensure that nodes will not

and can not ever become "locked" together for any reason.

CHAPTER IX
TIPS SUGGESTIONS

Color 64 BBS has evolved quite a bit since it first came out. There are literally a hundred or two support files needed for games, menus, messages, text, etc. I know how hard it is to backup everything, but the reason I stress it so strongly, is because if you make a mistake setting this network up, or you find a nasty bug in it, I will feel extremely guilty if you lost months (years?) of work. Gimme some peace of mind, and take this time to make backups.

There are also a lot of mods out there, and some of them might conflict with this network. As far as I know, I've only heard of one problem, and that is with the graffiti mod. You can get around this (if you're running this mod and DO come across a problem), by re-merging the graffiti mod after you have the network installed. If I remember correctly, the Network merge deleted a line which was needed in this mod (in ^bbs.msgs).

When you run NETWORK.MERGE, the following lines will be deleted:

^bbs.init: 2,18700,18710,18720,18725,18730,18740,18745,18750, 18755,18760,18770,18780,18790,18800,18810,18820,18830

^bbs.msgs: 2,10,200,300,450,500,600,700,1200,1400,3000,7000, 9000,9990,13000,15000,19000 (these lines WERE all rems).

CHAPTER X
TROUBLESHOOTING

Q. After I boot up, and after I answer the "regenerate message index" question, my BBS locks up, and the border starts flashing with multiple colors.

1. This means that a main module is missing, or can not be found. Make sure that the two main modules, ^bbs.nw1 and ^bbs.nw2 are located on your PROGRAMS drive.

2. If your programs drive is in RAM, there are two things to watch for. One, make sure that these two modules did in fact get loaded into them properly. For ramdos users, the file called "init" is the

means of storing these modules into ram. Re-read the section on booting up for more. If you are using the start 1700 routines, make sure you are using the booter called "start 1700/nw". The second problem may be free memory in RAM. Like I said before, a 1700 most likely won't do it, and a 1764 (with 256K ram) will be very tight as well. I once had a guy who had this problem, and he insisted that he had the memory. After about a week of painstaking troubleshooting, he finally realized that he was in fact low on ram memory, and corrected the problem.

3. The two modules are named improperly. The first EIGHT characters MUST be named ^bbs.nw1, and ^bbs.nw2 for the BBS to find these modules.

Q. After the BBS is booted up, I get a message on my call waiting screen saying that there is an ML conflict, but everything seems to be working fine.

1. Everything WILL work fine, except the IRQ wedge won't be installed which could mean BIG trouble if you ever get locked with another node. The chances now of this happening are slight, but not impossible.

2. An ML conflict means that the IRQ wedge was not installed because your BBS ML is of a version type unknown to the network. The network will recognize BBS ML versions 7.0, 7.3, 7.33, & 7.34. If your ML version is not one of these, you will either need to update your BBS, or contact my BBS for the required patch file if or when a newer BBS ML file is released.

Q. When booting up my BBS, half way into the start of it, I get a crash with "?file data error".
1. What this most likely means, is that either your ^ntwrk.parms file or your ^node list file got trashed. The number one reason for this happening, is because you used your delete key while editing in the Net Setup program. Re-read the section on using the Net Setup program.

2. If you determine that your file is indeed trashed, and you never made a backup, you probably won't be able to salvage the file, but you may be able to get some valuable information from it, by

reading the file with the BBS DOS f: feature, and jotting down any recognizable data, then scratching the file, and starting anew.

This troubleshooting section is far from complete. I have attempted to list the most common problems which are thrown at me. By including this section, I hope to have saved you the hassle of having to contact me with any problems you may experience.

CHAPTER XI
SUPPORT

TERRAPIN TRANSIT BBS 3 Lines
300/1200/2400 Baud 415-486-1160

If you have any questions at all, just call my BBS, or contact me through the network! If you write, it would be most helpful if you would include your registration number which should be located on the mailing label, disk label, or page 2 of this book.

I have set up a default account number for anyone to use with the network. The ID number is 218, and the password is PAINT. This is for network use only. REMEMBER! If you send me network mail using this account number, I can not reply! If you need to report a bug, or notify me of something that does not require a response, then this would be an ideal way to reach me.

Remember, this network was written by myself. Greg Pfountz is the author of Color 64 BBS. If you need help, I'm the one you want to deal with.